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ABSTRACT

This guide is essentially designed as a teaching aid for those who would inform planners, officials of educational ministries, school administrators, principals, and teachers about educational outcome measurements. In outline and graphic form, the guide presents topics for discussion in a seminar dealing with feedback consequences and steps toward implementation. An outline is presented and is intended as a preliminary "lesson plan." A discussion leader, selected by the group, will select materials appropriate for his or her group, adding and illustrating materials that are of particular interest to his or her country's (or region's) educational system. Steps required to use the seminar format are listed. At the end of the seminar those participating should: (1) Understand that the use of output measures may lead to a change in educational outputs as well as in the system itself; (2) Understand implications of implementing and using measurements for teachers and administrators; (3) Have a better grasp of the interactions of educational outcomes with school systems, students, and families; and (4) Understand methods of implementing outcome measures. (RC)

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SEMINAR NO. 6

FEEDBACK CONSEQUENCES AND STEPS TOWARD IMPLEMENTATION

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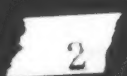
A Guide to Educational Outcome Measurements and Their Uses

TM005 300



A GUIDE TO

EDUCATIONAL OUTCOME MEASUREMENT AND THEIR USES

SEMINAR NO. I
Types of Outcome Measurements

SEMINAR NO. II
Uses of Outcome Measurement

SEMINAR NO. III
Generating Outcome Measurements: Achievement and Attitudes

SEMINAR NO. IV
Generating Outcome Measurements: Economic and Societal

SEMINAR NO. V
Applying Outcome Measurements

SEMINAR NO. VI
Feedback Consequences and Steps toward Implementation

SEMINAR NO. VI

FEEDBACK CONSEQUENCES AND STEPS TOWARD IMPLEMENTATION

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November, 1975

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PREFACE

This guide essentially is designed as a teaching aid for those who would inform planners, officials of educational ministries, school administrators, principals and teachers about educational ou - ome measurements.

In recent years, educational services and facilities have made increasing claims on national economic systems. Since the needs of all public services, including education, are pressing and sum to totals far in excess of resources available, it has become urgent that governments initiate processes of questioning both existing resource uses and those proposed, asking: Can we serve the public better and more cheaply? What can we do that would more surely achieve the results we seek?

Responsible education, planning, and finance officials have indicated great interest in measurement of educational results as a beginning step to finding answers to these questions.

In outline and graphic form, this guide presents topics for discussion in seminars dealing with the following subjects:

I. Types of outcome measurements
II. Uses of outcome measurement
III. Generating outcome measurements (achievements and attitudes)
IV. Generating outcome measurements (economic and societal)
V. Applying outcome measurements
VI. Feedback consequences and steps toward implementation.

The outlines for six seminars which follow are intended as guides or preliminary "lesson plans." The discussion leader will select material appropriate for his group. His additions of information and illustra-

tive materials that are of particular importance to his country's (or region's) educational system would greatly enhance the discussion.

"Figures" are presented before each discussion question and are tended to serve as visual aids. The discussion leader may distribute copies to group members or he may find it helpful to enlarge the figures into charts to use for the discussion, or to have view graphs made for this purpose. To facilitate such use all figures are reproduced in appendix B.

The topics covered can be so selected that a general orientation about educational outcomes may be presented in summary form in a single seminar, or more in depth discussion would require at least 6 seminars. Extensive training of one year or more is required to develop skills needed to properly design measurement instruments or the analytical capacity to apply them. However, for those who have the required analytical and quantitative skills already, participation in the seminars outlined would help provide an understanding of the policy implications of the emphasis on outcomes. The seminars are not designed as technical training, rather they are intended to:

- Provide an understanding of the different types of educational outcomes.
- Identify the variety of uses of outcome measurements.
- Help convey the choices on outcome measurement instruments and yardsticks for policy officials, school administrators and teachers.
- Provide some rudimentary understanding of the tools of analyzing the correlates of education outcomes.
- Make plain the possible impact of emphasis on educational outcomes for educational planning and school finance, as well as work in the classroom.

To use the seminar format the following steps are required:

STEP 1
A seminar discussion leader must be selected.

STEP 2
The discussion leader, together with the educational officials sponsoring these sessions should identify the particular purposes of the seminar, and should answer such questions as: For whom are the seminars intended? What is the purpose of carrying out the seminar?

STEP 3
Seminars should be announced as an offering with (a) the clear indication of top level support, and (b) a practical use of the learning

achieved in the continued work of the official, administrator, or teacher.

STEP 4

The discussion leader might select from the materials and "figures" presented in this guide those that appear particularly useful for the specific groups with whom the discussions are scheduled.

As an aid in this selection process, Appendix A suggests some portions of the text that appear most important for the following groups:

- top officials concerned with overall policy planning
- middle management in Ministries of Education and Finance
- school administrators
- school principals
- teachers
- instructors in teacher training institutions.

STEP 5

Supplementary reading materials should be selected. Supplementary readings are available from the Public Services Laboratory of Georgetown University; these include **Educational Outcome Measurement in Developing Countries: An Annotated Bibliography;** and **Educational Outcome Measurement in Developing Countries.**

STEP 6

Some preliminary evaluation should be introduced at the close of the seminars to determine whether the objectives of each seminar have been fulfilled. This can be done by testing instruments, by questionnaire, or by final closing comments of participants.

Such evaluations tell us little about whether the seminars made a difference. Only practical application indicate whether the seminars were successful in changing traditional practices.

TOPIC TO BE COVERED:
FEEDBACK CONSEQUENCES OF OUTCOME MEASUREMENTS AND STEPS TOWARD IMPLEMENTATION

Objective of Seminar No. VI

At the end of the seminar, those participating should:

(1) Understand that the use of output measures may lead to a change in educational outputs as well as in the system itself.

(2) Understand implications of implementing and using measurements for teachers and administrators.

(3) Have a better grasp of the interactions of educational outcomes with school systems, students, and families.

(4) Understand methods of implementing outcome measures.

Introductory Question for Discussion

Can you list some ways in which outcome measurements have an impact on education?

NOTES FOR DISCUSSION LEADER

Discussion leader may want to use this session to present an overview of the topic. First participants can be encouraged to think how each, individually, might be influenced by outcome measurements—teacher, principal, curriculum planner, economic planner and the like.

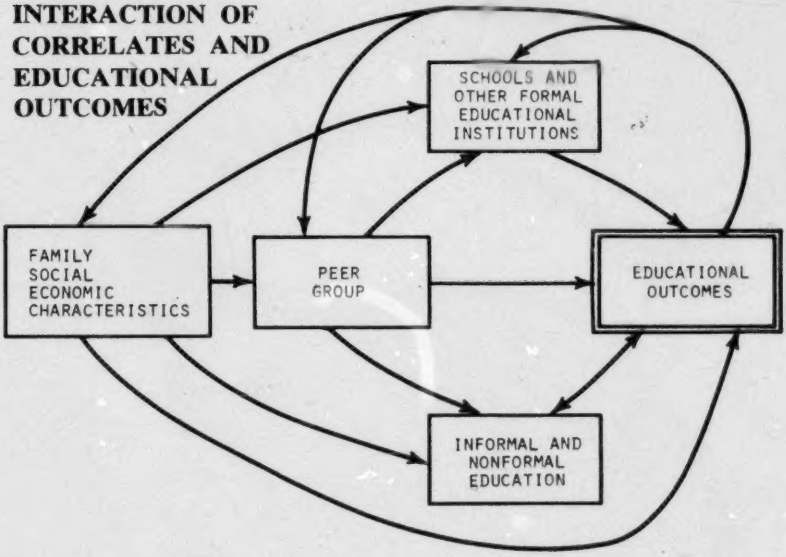
Then there might be a broader discussion of what educational systems (especially teachers, planners and administrators) could and would do if outcome measurements suggest that the educational system is not achieving its objectives.

Ideas on Presentation

What would the impact of educational outcomes measurement have on teachers, administrators, policy makers, parents? At this point, you may want to use Figure VI-1 which shows the feedback effect. Using the figure in introductory discussion as well as later will make it more meaningful.

FIGURE VI-1

INTERACTION OF CORRELATES AND EDUCATIONAL OUTCOMES



Question for Discussion

What impact do outcome measurements have on education itself?

NOTES FOR DISCUSSION LEADER

If schools and teachers can make an assessment of the results of their efforts by measuring student performance and learning, they may then be able to find strengths and weaknesses in their methods and in the school system.

Outcome measurement has a potential for influencing decisions on spending for education. It can, properly used, lead to improved teaching, better school organization, provision of textbooks and teaching aids, curriculum and even the preparation of teachers. Or outcome measurement can be carried out but remain an activity apart from the routines of educational policy.

Ideas on Presentation

Study findings show that of the three main inputs—families, peer groups and educational institutions—the family has been shown to have by far the most effect on achievement scores. But each of the main inputs has some effect on educational outcomes. Family not only influences outcomes but also the schools attended and the peer groups with whom the learning takes place.

But it is also likely that measured and recorded educational outcomes will have some impact on the form of education and its financing, on the selection of peers and on the parents.

Outcome measurement tends to have major impact on education itself. Outcome measurement originates in the thrust to achieve accountability in educational programs and improve program decisions. Once installed, the scoring of progress on learning may decrease rather than increase enthusiasm for devoting scarce resources to schools. This may occur if initial negative evaluations are taken at face value without indepth probing of the meaning of the findings and of the criteria or measurements.

Most existing instruments in use for analysis or evaluation were designed to test individuals for purposes of prediction of future academic success and by that prediction to determine new levels of school completion and entrance. The application of such instruments in program analysis and evaluation needs very careful scrutiny. Essentially only a beginning has been made to develop

instruments that are more suitable for policy purposes and for understanding what children and adults know of that which society expects them to know. Rudimentary as are the instruments for measurement of achievements in subject matter areas such as reading, mathematics, and science, even more primitive is the instrumentation of measures of attitude and attribute.

The simple proposition is advanced in this Guide that even though the data that are collected or the observations recorded are not precise, it is better to have some guidelines about outcomes than to make policy and administer educational activities without outcome information.

Perhaps no facet of outcome measurement has as great a potential for improving the quality of education as the determination to ask: What is it that education intends to do? What bits of knowledge and skill does it intend to convey? What kinds of persons does it intend to create with what attitudes and attributes? And how much progress is being made toward the achievement of that learning?

Furthermore, as outcome measurements come into use, new questions arise about educational objectives, and specifications of knowledge "bits," that contribute to individual development and learning.

TEACHER TRAINING FOR USE OF OUTCOME MEASUREMENT

Question for Discussion

What teacher training activity can be undertaken to facilitate analysis and assessment of educational programs and projects?

NOTES FOR DISCUSSION LEADER

Discuss the role of teacher training institutions which have responsibility for defining the new research questions and carrying out the research that can help identify how to teach in order to reach the knowledge, skills, attitudes, and other purposes desired.

Questions that might be asked include the following: Why is teacher participation in the measurement important? What are the advantages of in-service training on outcome measurements? Pre-service training? How may outcomes be used in management and planning for education?

Ideas on Presentation

The potential for improving the quality of education is strengthened when measurements are meaningfully undertaken; the realization of that potential depends largely on the involvement of the teacher training institutions in encouraging outcome measurement, in formulating the measures, in explaining the purposes and methods of measurement and in implementing measurements.

Figure VI-2 describes the components to be included in teacher training for effective use of outcome assessment.

Training can guide teachers to develop their own evaluation abilities. If training in measurement is specific, that is, if it stresses outcome measurements teachers will actually encounter, it may also help them in developing their own classroom test for particular occasions.

In such teacher training, the following topics could be useful: why it is important to measure outcome; the processes of defining specific learning goals to be measured, including teacher participation in goal selection; and actual preparation of instruments to measure goal attainment (for example, reliable and valid tests, good observational rating scales, interviewer questionnaires); and interpretation of outcome measurements. In the training, a review of standardized tests might cover such topics as who prepares it, who uses it, for

what purposes; how the test is given, graded, interpreted; and how the test has been or can be revised.

Teacher training institutions often also carry responsibility for developing understanding of educational managers and planning officials in the uses of educational outcome measurements for judging personnel performances, reviewing curriculum, redistributing resources of materials, personnel and facilities.

FIGURE VI-2

COMPONENTS OF TEACHER TRAINING FOR USE OF OUTCOME MEASUREMENTS

(1) Program assessment methods; goal setting, and outcome criteria

(2) Instrumentation: types, validity, statistical

(3) Measures of distribution of outcome indicators

(4) Kinds of assessments underway, regionally, nationally, and internationally

(5) Knowledge of experience is other nations with outcome measures

(6) Methods of teacher participation in implementation of outcome measures

(7) Knowledge of uses of outcome measurement in the classroom and school to improve teaching.

OUTCOME MEASURES: AN AID TO TEACHERS

Question for Discussion

How are teachers using outcome measures to improve their teaching?

NOTES FOR DISCUSSION LEADER

(This seminar discussion is closely related to the previous one and discussion leader may want to combine the two.)

Hopefully, teachers trained in output measurement will become better teachers by having at their disposal a systematic basis for assessing and revising their teaching practices in light of student performance. Getting teachers involved can help improve the accuracy, applicability and quality of assessment measures and the entire planning process. Far too often the evaluation of students and programs has been an alien process conducted by administrators or officials remote from the actual learning conditions. Diagnostic uses of education outcome measurements, particularly of standardized tests, whether externally prepared or locally, may lead to a number of questions teachers can ask:

1. Do I teach the information covered on the test? In other words, can and do I use the test as a guide to teaching?

In the discussion, point out that "teaching to the test" may be only *one* of many guides to course content. Standardized tests, for example, measure only samples of the learning anticipated in a course of study; therefore, if the test is the sole outline for a course, the content will be narrow and incomplete.

2. Does the test cover the information I teach? The answer to this may lead the teacher to communicate with test designers to encourage them to incorporate content covered in class. The teachers may even be drawn into the process of test design themselves.

3. Is there a pattern of student success or failure shown by tests which I can correct? The pattern may indicate the need to change course emphases, to spend more time with slow learners, to attempt to approach the material using a different method of teaching.

4. How do my (and the students') attitudes, expectations and interests have an impact on accurate student or program assessment?

An awareness by teachers of their own and their students' nonintellectual traits and needs may well in itself change the climate of the classroom to foster learning and development. Many studies on the effects of teachers' expectations for students' achievement have demonstrated that students are influenced by the opinions of their teachers. Indeed, some researchers feel that teacher attitudes are the missing element in studies such as the Coleman Report in the United States* and International Association for the Evaluation

* Coleman, James, *op. cit.* Seminar III

of Education (IEA)** assessment, which seek to establish the variables associated with student achievement.

Training programs for teachers could help to keep teachers focused on the actual relevant outcomes of the educational process. Where outcomes are falling short of targets, teachers may be in the best position to determine why. For example, in an adult literacy class, attendance may be good, interest apparently high and results on the class quizzes adequate, but beyond the classroom no one is using the skill. Further exploration may indicate that the only available reading material is highly technical and the language of the primer is considered too childish to be useful. A creative and alert teacher might sense the need to change the text or write a new one, to help people write letters in class, or to encourage a collective effort to secure a modest library in order to get the program to produce the desired results of functional literacy.

** Reviewed in supplementary reading material.

Ideas on Presentation

When measurements become available showing what students have learned of those items of information, knowledge, and skills that are defined, teachers have a ready check on the deficiencies in learning. Corrective teaching becomes possible; teaching would be designed to overcome the wrong responses made by students.

As indicated by Figure VI-3, there are a series of actions teachers may take in order to make use of test results for this purpose. They could scrutinize existing testing instruments and participate in their modification and in design of new instruments. Of course, these instruments must validly reflect the knowledge and skills that are required content of learning at that particular grade level.

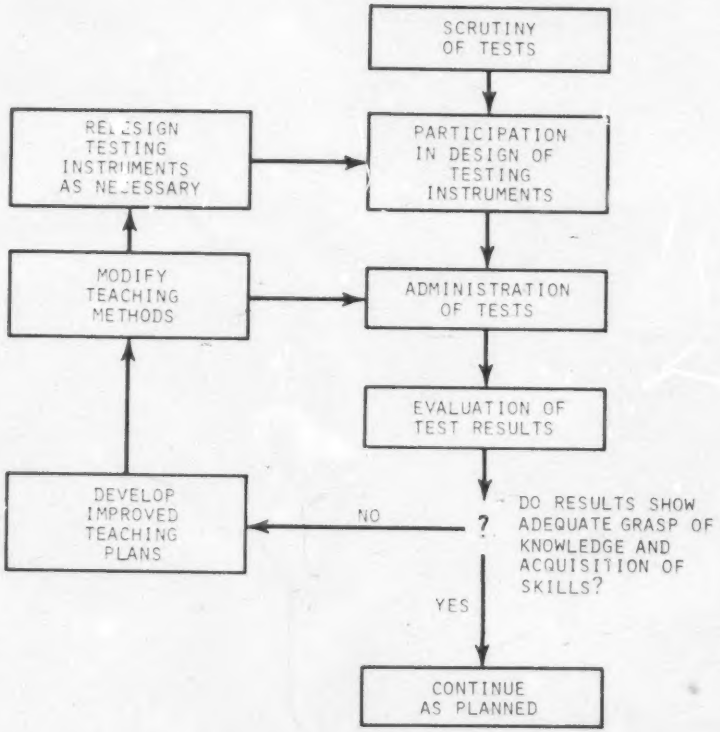
After administering the tests, the teachers could review the results, identify the errors made and the gaps in knowledge and skills revealed by these errors. The teacher might develop improved teaching plans and modify teaching methods that would help convey the knowledge and skills shown to be deficient. The test instruments themselves may require further modification.

When changes in plans and methods have been incorporated and the students taken again through the course material, the tests might be readministered to determine whether the knowledge and skills have been learned.

Performance by teachers is strongly affected by teacher training and teacher participation in the processes of outcome definitions, instrumentation and implementation of outcome measurement.

FIGURE VI-3

USE OF OUTCOMES AS A TEACHING AID BY TEACHERS



ADMINISTRATIVE USES OF OUTCOME MEASUREMENTS

Question for Discussion

What are administrative uses of outcome measurements?

NOTES FOR DISCUSSION LEADER

Administrative procedures often pervade every aspect of the educational environment. They determine class size, length of class time and school day, disciplinary measures, location of schools, use of educational plant when school is not in progress, provision of ancillary services such as guidance, nutrition and health care, libraries, tuition and other costs to students and many other areas. These procedures might be scrutinized to weigh their effects on efficiency and student learning, and to accomplish this, a greater use of outcome measures would be helpful. Educational measurements may show performance has been low. This acts as a signal to the administrator to look at curriculum or at teacher training, hiring and promotion, teaching methods or at some other school resource to see where weaknesses may be.

Some questions to be discussed might include: Are school administrators participating in designing outcome measures? Are they doing anything different as a consequence of measurement of outcomes?

Resources for special school or school district *testing* units depend on administrators for their support and in many ways the testing unit's function will depend upon the enthusiasm, imagination, and knowledge that is given it by administrators. Only if outcome measurement turns out to be useful in improving learning or reducing costs will it continue to be used.

Ideas on Presentation

To make outcome measurement useful for administrative purposes, it is important that outcomes sought be understood and the need for measurement be discussed by administrators, principals, and teachers; participation in design, instrumentation and use should be widespread among all those who have an interest in program results.

In-service training on outcome measurements—types, uses, qualifications—depend upon school officials. On those administrators fall the opportunity and responsibility for informing the teachers and principals about outcome measurements and designing training programs. The kinds of factors that may be influenced by use of measurements are enumerated in Figure VI-4.

FIGURE VI-4

ADMINISTRATIVE USES OF OUTCOME MEASUREMENTS

- They are useful in identifying differences among schools in outcomes
- Resources can be allocated to attempt to compensate for deficiencies in outcome
- Teaching resources can be allocated to help compensate for deficiencies
- Gaps can be defined between knowledge and skill considered necessary for grade completion and actual performance of students
- Alternative teaching methods can be tested on the basis of outcomes
- Alternative teaching aids can be tested for success in reaching outcomes
- Better coordination can be worked out with Ministries of Finance, Agriculture, Labor and public employment agencies.

IMPACT OF OUTCOME MEASUREMENTS ON FAMILIES AND STUDENTS

Question for Discussion

What impact do outcome measures have on families and students?

NOTES FOR DISCUSSION LEADER

You have already discussed the impact of educational measurement on school systems, teachers and administrators. The participants now can turn to look at the impact on parents and students. At the same time, the "feedback" or interaction of correlates and educational outcomes can be reinforced.

It might be suggested that, if outcome measures indicate that performance (or learning) in certain schools seem to be "below average," parents may take a more active role to seek changes in the schools. For secondary schools where tuition is involved, student performances may be a determining factor in school selection.

Alternatively, outcome measures may show the strong points of certain schools or teaching methods.

Students themselves will be affected by their outcomes; and peer attitudes of performance may have considerable influence on future outcomes.

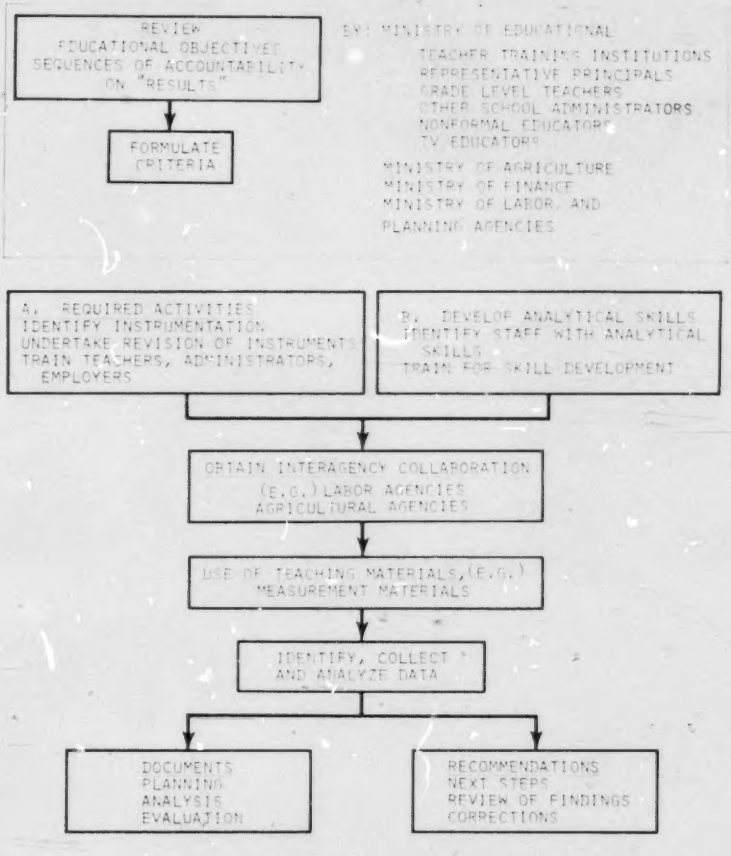
Ideas on Presentation

The potential contribution of the educational establishment is identified with that of the family and peer group. But the extent to which intended educational outcomes are reached can influence the resources allocated for schools, the attitudes of parents to school and child and the attitudes of children to learning. These interactions are illustrated in Figure VI-1 shown above.

In the final analysis, the objective of outcome measurements is the improvement of education. Ask the participants to suggest how to involve parents in this process. Can teachers and administrators in schools with low performance list some ways they can work with students as well as their families to improve education?

FIGURE VI-5

STEPS IN IMPLEMENTATION OF OUTCOME MEASUREMENT



IMPLEMENTATION OF EDUCATIONAL OUTCOME MEASUREMENTS

Question for Discussion

How are educational outcome measurements implemented?

NOTES FOR DISCUSSION LEADER

It might be pointed out that use of outcome measurements calls for support from everyone involved in the educational process. The necessary first step toward implementation is a decision by a top official to give his support to an undertaking emphasizing *results* of educational outlays. That first step may take the form of a policy to evaluate educational programs and a conditioning of national funding on such evaluations. Or it may take the form of a policy calling for analytical studies of education as a basis for budget requests, or as a component of planning documents. Or it may call for management processes based on results including perhaps wage policies or special financial incentives for additional outcomes in pupil learning.

Then the method of implementing outcome measures can be determined. Governmental methods will vary, for no single set of processes are workable. Many different approaches may be used with about equal assurance that policy decision will be better informed by the availability of measures of outcome, or extent of success in reaching defined outcomes.

Ideas on Presentation

Having determined on a course of implementation of analytical processes requiring outcome measurement, the way is paved for such measurement. (See Figure VI-5 for suggested steps in implementation.)

Organizational arrangements are needed to carry out outcome measurement, to determine how to relate outcome measurement to educational policy and how to monitor such policies.

Decisions have to be made about a number of questions, including the following:

- What agencies or units should be responsible for measurement? How can the necessary interagency cooperative be achieved?
- What agencies or units should be responsible for carrying out needed additional surveys and basic research?
- What organizational provision should be made for teacher training on outcome measurement and for insuring that deficiencies uncov-

ered by outcome measurement lead to improvement in curriculum, teaching methods, school organization and so forth?

- What steps would have to be taken to determine the impact of education on work skills and motivation for work and of job qualifications on education?
- What agency arrangements are needed to complement formal education through nonformal methods?
- What processes of outcome measurement should be designed to facilitate access of nonformal educated persons to formal education channels?

APPENDIX A

Selected Uses

As indicated in the Preface, some of the materials and "figures" in the six seminars may be particularly useful for the specific groups with whom the discussion are scheduled.

To some extent, selections will be made at the discretion of the discussion leader and may depend in part on the length of time available and on the amount of material included in the seminar.

Brief Comment on Selection from Seminars for Different Groups

Generally, Seminars III and VI, along with introductory material from Seminar I, are the most important for teachers, officials directly concerned with school administration, and teacher training institute instructors.

Seminars II, IV, and VI are most important in providing basic materials for top officials concerned with overall policy planning, middle management officials in Ministries of Education and Finance, and training institute instructors who teach planners and school administrators. Seminar I provides a backdrop discussion of concepts and of the multiplicity of outcome measurements. By and large, Seminar V will help inform top officials in planning and in Ministries of Education and Finance of what they can expect from the analyses.

Selected Uses for Seminar VI

All the material in Seminar VI should be presented in some detail to all groups. However, the feedback of outcome measurement will go to the different levels of the educational system and will have different implications for each level. Therefore greater stress could be given to some of the topics for each group as follows:

For top planners and management officials in Ministries of Education and Finance;

pp. 15-16 Administrative Uses of Outcome Measurements
pp. 18-20 Implementation of Education Outcome Measurements

For school administrators, the above two topics and, in addition;

pp. 17 Impact of Outcome Measurements on Families and Students.

For teacher training institution personnel;

pp. 10-11 Teacher Training for Use of Outcome Measurements
pp. 12-14 Outcome Measures: An Aid to Teachers

For teachers, the above two topics, and, in addition;

pp. 17 Impact of Outcome Measurements on Families and Students.

APPENDIX B

FIGURE VI-1

INTERACTION OF CORRELATES AND EDUCATIONAL OUTCOMES

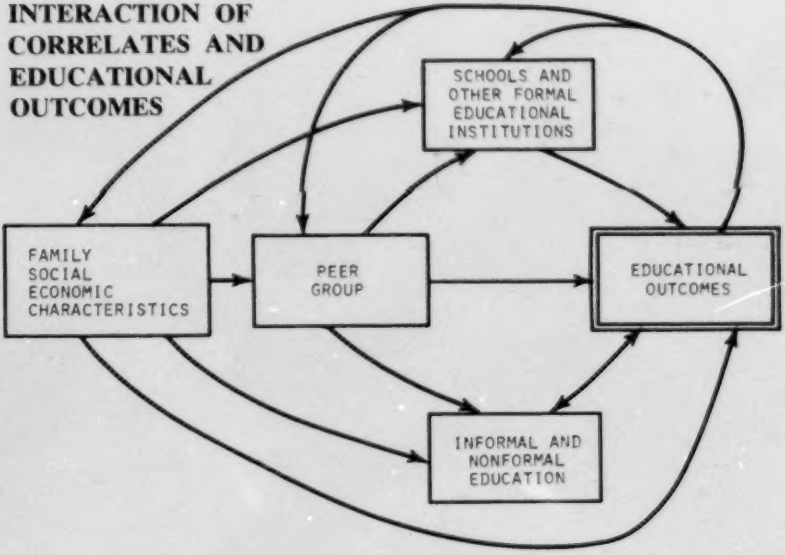


FIGURE VI-2

COMPONENTS OF TEACHER TRAINING FOR USE OF OUTCOME MEASUREMENTS

(1) Program assessment methods: goal setting, and outcome criteria

(2) Instrumentation: types, validity, statistical

(3) Measures of distribution of outcome indicators

(4) Kinds of assessments underway, regionally, nationally, and internationally

(5) Knowledge of experience is other nations with outcome measures

(6) Methods of teacher participation in implementation of outcome measures

(7) Knowledge of uses of outcome measurement in the classroom and school to improve teaching.

FIGURE VI-3

USE OF OUTCOMES AS A TEACHING AID BY TEACHERS

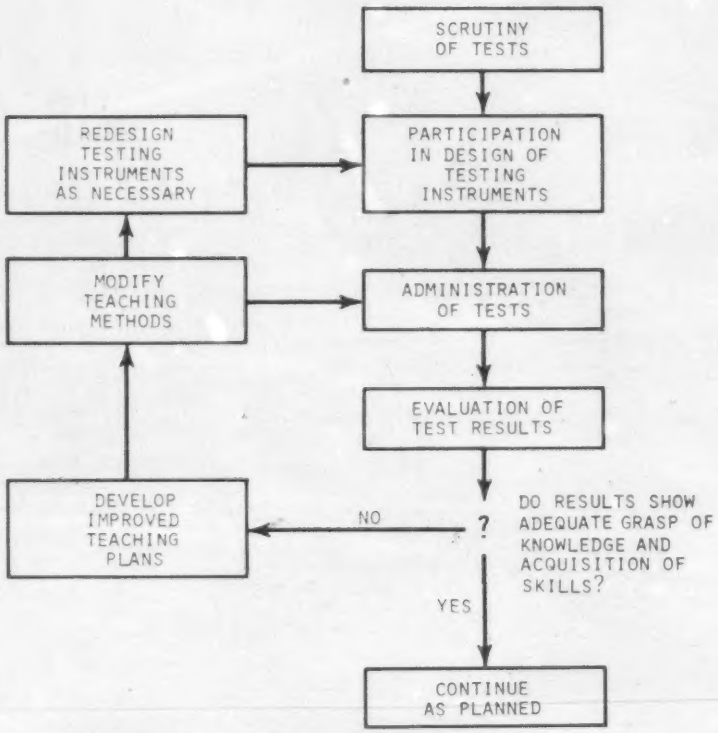

SCRUTINY OF TESTS
PARTICIPATION IN DESIGN OF TESTING INSTRUMENTS
ADMINISTRATION OF TESTS
EVALUATION OF TEST RESULTS
DO RESULTS SHOW ADEQUATE GRASP OF KNOWLEDGE AND ACQUISITION OF SKILLS?
NO
YES
DEVELOP IMPROVED TEACHING PLANS
MODIFY TEACHING METHODS
REDESIGN TESTING INSTRUMENTS AS NECESSARY
CONTINUE AS PLANNED

FIGURE VI-4

ADMINISTRATIVE USES OF OUTCOME MEASUREMENTS

- They are useful in identifying differences among schools in outcomes
- Resources can be allocated to attempt to compensate for deficiencies in outcome
- Teaching resources can be allocated to help compensate for deficiencies
- Gaps can be defined between knowledge and skill considered necessary for grade completion and actual performance of students
- Alternative teaching methods can be tested on the basis of outcomes
- Alternative teaching aids can be tested for success in reaching outcomes
- Better coordination can be worked out with Ministries of Finance, Agriculture, Labor and public employment agencies.

FIGURE VI-5

STEPS IN IMPLEMENTATION OF OUTCOME MEASUREMENT